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## REVIEWS OF RECENT LITERATURE.

### ZOÖLOGY.

**Two Important Papers on North-American Mammals.**—The literature relating to recent work on North-American mammals is so scattered, and the results have been the outcome of investigations by such a number of different workers, and based on such varying amounts of material, that it is a great gain when a competent authority on any given group can go over it and coördinate the efforts of his predecessors in the light of, practically, all of their material, combined with a vast amount in addition. In other words, the monographic revision of any of the larger genera of North-American mammals by an expert is a distinct advance, for which all mammalogists may well feel grateful. It is with pleasure, therefore, that we call attention to two recent contributions of this character—Mr. Vernon Bailey's "Revision of American Voles of the Genus *Microtus*," and Mr. W. H. Osgood's "Revision of the Pocket Mice of the Genus *Perognathus*."

Mr. Bailey's revision<sup>1</sup> of the American voles, or meadow mice, is "based on a study of between five thousand and six thousand specimens from more than eight hundred localities, including types or topotypes of every recognized species with a known type locality, and also types or topotypes of most of the species placed in synonymy." With such material at command, and with a wide experience with the animals in life, and personal knowledge of the actual conditions of environment over a large part of the range of the group, Mr. Bailey has had peculiar advantages for his work, and his results are subject to revision only at points where material is still deficient, or from some other point of view. This revision, while obviously not final, presents a new starting point for future workers, and is likely to be a standard for many years to come.

The little animals here treated are the short-tailed field mice,

<sup>1</sup> Revision of American Voles of the Genus *Microtus*. By Vernon Bailey, Chief Field Naturalist, Division of Biological Survey, U. S. Department of Agriculture. Prepared under the direction of Dr. C. Hart Merriam, Chief of the Division. *North American Fauna*, No. 17, pp. 1-88, with 5 plates and 17 text-figures. Issued June 6, 1900.

familiarly typified by our common "meadow mice" of the Eastern States. The group is divisible into several well-marked subgenera, formerly generally known under the generic term "Arvicola," which has had to give way to the less known but older term "Microtus." The group is especially distinctive of the northern hemisphere north of the tropics, and is found throughout North America from the mountains of Guatemala and southern Mexico northward, increasing numerically, both in species and individuals, from the south northward till it reaches its greatest abundance in the middle and colder temperate zones, again declining thence northward to the Arctic coast. They are vegetable feeders, and often do considerable damage to trees and crops; they are active in the winter, forming long burrows or tunnels under the snow; they are also very prolific, breeding several times a year, young being found throughout the warmer months.

The seventy species and subspecies recognized by Mr. Bailey are arranged in nine subgenera; between the extreme forms the differences are strongly marked, but the intermediate forms present gradual stages of intergradation. The subgenus *Neofiber*, of Florida, embracing the round-tailed muskrat, and the subgenus *Lagurus*, of the semi-arid districts of the northwestern United States, present the most striking contrast, not only in size but in many other features. The former is perhaps the largest known vole, while the latter group includes the smallest.

Mr. Bailey's paper, being a synopsis rather than a monograph, leaves much to be desired in point of detail, but is admirable in its way, and covers the ground with as much fullness as his prescribed limits would permit. Of the twenty-six synonyms cited, it is noticeable that thirteen relate to our common eastern meadow mouse, and date from the early authors, while two other eastern species furnish three others, also of early date. Only six of the remaining ten are of recent date, showing that of some fifty-five forms described within the last ten years, by nine different authors, forty-eight meet with Mr. Bailey's approval. Four of the remaining seven are identified with earlier names which for many years have been considered indeterminable, but which Mr. Bailey claims to have established on the basis of topotypes.

While he may be correct in these determinations, it would have been of interest to his fellow-specialists if he had stated the basis of his determination of certain type localities, notably those of Richardson's species, described as from the "Rocky Mountains," or similarly

vague localities. If he has some "inside history" to fall back upon, it is only fair that the secret should be made public.

It may be said further, in the way of gentle criticism, that it is hardly fair wholly to ignore such knotty points as the allocation of a few names which he omits, since they form part of the literature of the subject, as, for example, *Hypudaeus ochrogaster* Wagner, *Arvicola noveboracensis* Richardson, and some of Rafinesque's names. Mr. Bailey describes as new two species and one subspecies.

Mr. Osgood's "Revision of the Pocket Mice"<sup>1</sup> is an equally welcome contribution, and has been prepared upon much the same lines, with equal advantages in the way of material and field experience. The pocket mice of the genus *Perognathus* are confined to a limited portion of North America, being found only west of the Mississippi, and ranging from the southern border of British Columbia south to the valley of Mexico. They are strictly nocturnal and live in burrows, are partial to arid regions and seem to thrive even in the most barren deserts. Their habits are hence not well known, as they are very shy and even difficult to trap. They are mouse-like in form, but only distantly related to the true rats and mice. Their most obvious character is the possession of cheek pouches which open externally.

The pocket mice vary greatly in size, form, and in the nature of their pelage, which may be either soft or hispid; but between the wide extremes there are so many closely connecting links that it is difficult to find any sharp lines of division, although two subgenera are fairly recognizable. The whole number of forms here recognized is 52 — 31 species and 21 additional subspecies, about equally divided between the subgenera *Perognathus* and *Chaetodipus*. Of these, thirteen are here for the first time described. Out of a total of 61 specific and subspecific names applied to forms of this group, 9 are relegated to synonymy. Of these 61 names, it is interesting to note that 52 date from 1889 or later, and that of these, eight prove to be synonyms, three of them having become so through the identification of older names thought ten years ago to be indeterminable, but since reestablished on the basis of topotypes.

A previous revision of this group was made in 1889 by Dr. C. Hart Merriam, on the basis of less than two hundred specimens —

<sup>1</sup> Revision of the Pocket Mice of the Genus *Perognathus*. By Wilfred H. Osgood, Assistant Biologist, Biological Survey, U. S. Department of Agriculture. Prepared under the direction of Dr. C. Hart Merriam, Chief of Division of Biological Survey. *North American Fauna*, No. 18, pp. 1-72, Pls. I-IV, and 15 text-cuts. Issued Sept. 20, 1900.

all of the material then available — when the number of currently recognized forms was raised from six to twenty-one. Dr. Merriam's work, however, cleared the way for a better conception of the group, rectifying important errors of nomenclature and making known many new forms. Mr. Osgood, with fifteen times this amount of material, seems to have settled all of the remaining doubts regarding the application of certain early names, and, besides coördinating the work of his predecessors, has immensely extended our knowledge of the group. The paper is admirable from every point of view and does great credit to its author.

J. A. A.

**The Eighteenth Annual Report of the Fishing Board for Scotland.** — In this report Thomas Scott gives an interesting local list of the fishes of the Firth of Clyde. The determination of species seems to be accurate, and the nomenclature is more modern than usual in British lists.

Mr. H. C. Williamson attempts by means of very many measurements to ascertain whether a racial difference exists between the mackerel of the east and west coasts of Scotland. He uses the means employed for the distinction of races among men and lately used by Heincke for the definition of races of herring. The Mean, the Probable Error of the Mean, and the Standard Deviation are derived from the formula given in Davenport's *Statistical Methods*.

By these mathematical means the alleged variation in the mackerels of Scotland is elaborately investigated, with negative results, the races not being sufficiently marked to require recognition.

Mr. H. M. Kyle, of St. Andrews, has a suggestive and valuable discussion of the origin and mutual relations of the different groups of flounders and soles. The arrangement adopted agrees in general with that of Jordan and Evermann, which is based largely on earlier researches of Dr. Gill. He would differ from Jordan and Evermann in reducing somewhat the number of genera, and in separating the *Paralichthys* type as a subfamily distinct from *Hippoglossinæ*. To this subfamily, which he calls *Hippoglossorhombinæ*, he would add the allies of *Syacium* and *Citharichthys*. The soles constitute in his view three additional subfamilies, *Achirinæ*, *Soleinæ*, and *Cynoglossinæ*. The affinities of these groups are obscured by making the soles a distinct family, the three subfamilies being separately reduced or degenerated groups of flounders. To all this there is no serious objection, though *Citharichthys* and its allies seem to us rather closer to the *Psettinæ* (or *Rhombinæ*, as Mr. Kyle prefers to call them,